

U.S. Patent Application Serial No. 09/839,357  
Amendment dated August 13, 2004  
Reply to OA of **May 18, 2004**

**REMARKS**

Claims 1, 4, 8, 12-15, 18 and 22-29 are currently pending in this application. Claims 2, 3, 5-7, 9-11, 16-17, 19-21 and 23-27 have been canceled. Claims 1, 8, 14, 15 and 22 have been amended. Applicant respectfully submits that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated **May 18, 2004**.

**Claims 2-3 and 17 are objected to because of informalities.**

The Examiner objects to the use of parentheses in these claims. Claims 2-3 and 17 have been canceled without prejudice or disclaimer. Claim 1 has also been amended to remove the parentheses.

**Claims 12-13, 15, and 26-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The rejection of claims 12-13 and 26-27 is moot in view of the cancellation of these claims without prejudice or disclaimer.

The Examiner rejected claim 15 for limiting a composition with a method limitation. The rejection of claim 15 is respectfully traversed. Applicant notes that the limitation of a product with a process limitation for making the product represents a “product-by-process,” which is proper (see MPEP 173.05(p)). Applicant has, however, amended claim 15 for clarity, deleting the redundant word “furthermore.”

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**Claims 1-10, 12-14, 16-17, 19-24 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akinari et al. (JP 11-246309) in view of Cardarelli (U.S. Patent No. 4,400,374).**

The rejection is overcome by the amendment to the claims. Claims 2, 3, 5-7, 9, 10, 12, 13, 16, 17, 19-21, 23, 24, 26 and 27 have been canceled without prejudice or disclaimer. Independent claims 1 and 14 have each been amended to limit the “water-wettable polymer compound” to –water-wettable polyvinylalcohol type polymer–, and to limit the “anti-protista substance” to –cetyl pyridinium chloride as an anti-protista substance–.

Support for the recitation of the “polyvinylalcohol type polymer” may be found, for example, in original claim 7, now canceled, and in the specification on page 5, lines 19-20. Support for the recitation of the “cetyl pyridinium chloride” may be found, for example, in original claim 11, now canceled, and in the specification on page 4, line 18. The specific combination of these two components is disclosed in Examples 8 and 9 on pages 10-11 of the specification, and when the composition comprising cetyl pyridinium chloride and polyvinylalcohol type polymer is used, it can maintain the anti-protista effect for a long time (over 6 months) (see page 12 of the specification).

Applicant submits that there is no teaching or suggestion in the combination of Akinari et al. (JP 11-246309) and Cardarelli for the recited combination of cetyl pyridinium chloride and polyvinylalcohol type polymer.

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Akinari et al. discloses a waterway treating composition comprising polyvinyl alcohol as a polymer and a quaternary ammonium salt having a specific formula (i.e. formula (I)) as a biocidal agent. But, since the waterway treating composition is used for inhibiting proliferation of the iron bacterium and the sulfate-reducing bacteria (see paragraph [0009]), the biocidal agents in the composition are ones which are suitable for inhibiting proliferation of the iron bacterium and the sulfate-reducing bacteria (see paragraphs [0011]-[0012]). Therefore, since cetyl pyridinium chloride (CPC) is not listed in the specification of the Akinari et al, there is no motivation to use CPC as a biocidal agent.

Moreover, the recited combination of cetyl pyridinium chloride (CPC) and polyvinylalcohol (PVA) type polymer has **unexpected advantages** over the cited references. Applicant notes that one of biocidal agents in Akinari et al. is benzetonium chloride. When using the preparation comprising benzetonium chloride and PVA made by the general method of the present invention (see Experimental Example 1 of the present invention; Preparations 6 and 11 (page 12 of the specification)), as seen in the results in Figure 1, the composition comprising benzetonium chloride and PVA is inferior to the preparation comprising CPC and PVA (preparations 8 and 9) in the long term sustained-release effect. Therefore, the result arising from the combination of CPC and PVA type polymer is **unexpected** from the disclosure of Akinari et al.

Cardarelli discloses a sustained-releasing polymer containing biocidal agent, but there is neither a disclosure of nor suggestion for a composition comprising PVA type polymer as a polymer

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and CPC as an anti-biocidal substance, nor as to any effect of a composition comprising PVA type polymer and CPC.

Applicants therefore assert that claims 1 and 14, as well as the claims depending from claims 1 and 14, are not anticipated by, and are non-obvious over, Akinari et al. and Cardarelli, taken separately or in combination.

**Claims 1-6, 9-20 and 23-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaughn et al. (U.S. Patent No. 5,006,267) in view of Cardarelli (U.S. Patent No. 4,400,374).**

Applicants submit that pending claims 1, 4, 14, 15, 18, 28 and 29, as amended, are not obvious over the combination of Vaughn et al. and Cardarelli.

Vaughn et al. discloses a polymer to which a biocidal agent such as CPC is ionically bonded. However, there is neither disclosure nor suggestion that PVA type polymer as a polymer is used, nor as to what effect a composition comprising PVA type polymer would have. That is, the effect of the composition comprising PVA type polymer and CPC would be unexpected from Vaughn et al.

Thus, there is no motivation in the description of Vaughn et al. and the above Cardarelli to use a composition comprising PVA type polymer and CPC. Moreover, the effect resulting from the claimed combination of these components (as discussed above) is unexpected from these references.

Applicants therefore submit that the pending claims are novel and non-obvious over Vaughn et al. and Cardarelli, taken separately or in combination.

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In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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